

WHAT IS CLAIMED IS:

1. A process for cleaning soiled garments or fabric materials comprising the steps of:

A) placing said soiled garments or fabric materials into a sealable and pressurizable device;

B) introducing into the device a cleaning agent comprising CO<sub>2</sub>, which comprises a fragrance system;

C) contacting said soiled garments or fabric materials with said cleaning agent to remove undesired stains or soils and to deposit a substantive long lasting fragrance system on said garment or fabric materials.

2. The process according to Claim 1, wherein said CO<sub>2</sub> is liquid CO<sub>2</sub>.

3. The process according to Claim 1, wherein said CO<sub>2</sub> is supercritical CO<sub>2</sub>.

4. The process according to Claim 1, wherein said fragrance system comprises fragrance ingredients that are determined to be substantive to garments according to the following mathematical equation:

$$y = a_0 + \sum a_n x_n.$$

wherein y is defined as the predicted relative fabric value affinity of an aroma chemical on having a range of from about 1 - 7 with 7 being the most substantive;

wherein x<sub>1-n</sub> are defined as molecular descriptors derived out of COSMO RS calculations; n is defined as number of descriptors used in the said equation,

wherein a<sub>0-n</sub> are defined as coefficients derived from linear regression analysis.

5. The process according to Claim 4, wherein a<sub>0</sub> = 0.2771, a<sub>1</sub> = -0.0042, a<sub>2</sub> = -0.0094, a<sub>3</sub> = 0.0061, a<sub>4</sub> = -0.2738 and a<sub>5</sub> = -0.0377; and x<sub>1</sub> =

$\sigma$ -moment  $M_2$ ,  $x_2 = \sigma$ -moment  $M_3$ ,  $x_3 = \sigma$ -moment  $M_4$ ,  $x_4 = f_{don}$ , and  $x_5 = \Delta G_{Cosmo}$ ; and  $n = 5$ .

6. The process according to Claim 4, wherein at least 60% of said fragrance ingredients have a relative fabric affinity value ( $y$ ) of at least 4.

7. The process according to Claim 6, wherein at least 75% of said fragrance ingredients have a relative fabric affinity value ( $y$ ) of at least 4.

8. The process according to Claim 7, wherein at least 85% of said fragrance ingredients have a relative fabric affinity value ( $y$ ) of at least 4.

9. The process according to Claim 4, wherein at least 50% of said fragrance ingredients have a relative fabric affinity value ( $y$ ) of at least 6.

10. The process according to Claim 9, wherein at least 60% of said fragrance ingredients have a relative fabric affinity value ( $y$ ) of at least 6.

11. The process according to Claim 10, wherein at least 70% of said fragrance ingredients have a relative fabric affinity value ( $y$ ) of at least 6.

12. The process according to Claim 1, wherein said fragrance system comprises additional additives selected from the group consisting of anti-microbial ingredients, UV filters, anti-static ingredients, optical brighteners, cooling agents, and warming agents.

13. A fragrance system for use in a liquid  $CO_2$  cleaning system comprises fragrance ingredients that are determined to be substantive to garments according to the following mathematical equation:

$$y = a_0 + \sum a_n x_n.$$

wherein  $y$  is defined as the predicted relative substantivity of an aroma chemical on having a range of from about 1 - 7 with 7 being the most substantive;

wherein  $x_{1-n}$  are defined as molecular descriptors derived out of COSMO

5 RS calculations; wherein  $n$  is defined as number of descriptors used in the said equation, wherein  $a_{0-n}$  are defined as coefficients derived from linear regression analysis.

14. The process according to Claim 13, wherein  $a_0 = 0.2771$ ,  $a_1 = -0.0042$ ,  $a_2 = -0.0094$ ,  $a_3 = 0.0061$ ,  $a_4 = -0.2738$  and  $a_5 = -0.0377$ ; and  
10  $x_1 = \sigma$ -moment  $M_2$ ,  $x_2 = \sigma$ -moment  $M_3$ ,  $x_3 = \sigma$ -moment  $M_4$ ,  $x_4 = f_{\text{don}}$ , and  $x_5 = \Delta G_{\text{Cosmo}}$ ; and  $n = 5$ .

15. The fragrance system according to Claim 13, wherein at least 60% of said fragrance ingredients have a relative fabric affinity value ( $y$ ) of at least 4.

16. The fragrance system according to Claim 15, wherein at least 75% of said fragrance ingredients have a relative fabric affinity value ( $y$ ) of at least 4.

17. The fragrance system according to Claim 16, wherein at least 85% of said fragrance ingredients have a relative fabric affinity value ( $y$ ) of at least 4.

18. The fragrance system according to Claim 13, wherein at least 50% of said fragrance ingredients have a relative fabric affinity value ( $y$ ) of at least 6.

19. The fragrance system according to Claim 18, wherein at least 60% of said fragrance ingredients have a relative fabric affinity value ( $y$ ) of at least 6.

20. The fragrance system according to Claim 19, wherein at least 70% of said fragrance ingredients have a relative fabric affinity value ( $y$ ) of at least 6.

21. The fragrance system according to Claim 13, wherein said fragrance system comprises additional additives selected from the group consisting of anti-microbial ingredients, UV filters, anti-static ingredients, optical brighteners, cooling agents, and warming agents.